

**ANNUAL REPORT TO THE
JOINT SUBCOMMITTEE STUDYING MEASURES TO REDUCE
EMISSIONS FROM COAL-CARRYING RAILROAD CARS
PER SENATE RESOLUTION NO. 257**

Submitted by
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In accordance with the 1997 Virginia Senate Joint Resolution No. 257, Norfolk Southern Corporation (Norfolk Southern) summarizes the efforts to identify and mitigate fugitive coal dust emissions from its rail corridors and facilities in the Commonwealth during the calendar year 2015. This report illustrates Norfolk Southern's compliance with the resolution and our commitment to protect the environment.

Summary of Key Accomplishments in 2015

- Norfolk Southern's Performance Monitoring Plan remains fully implemented.
- The Trackside Monitor in Altavista, VA has been upgraded with a new rain gauge and anemometer, and continues to monitor trains headed for the Tidewater area, providing timely and valuable feedback to the mines participating in Norfolk Southern's coal dust reduction program.
- The 1-800 Dusting Report Line continues to be available to record any complaints from persons and businesses located in the rail corridors through which Norfolk Southern transports coal. Norfolk Southern did not receive any complaints from the 1-800 line in 2015, but did receive several calls and emails regarding coal dust from operations at Lamberts Point in Norfolk, VA.
- Monitoring of particulate matter (PM₁₀) near Lamberts Point in Norfolk, VA continues to demonstrate compliance with the national ambient air quality standards. Two new PM₁₀ monitors were installed in August replacing one older monitor at the nearby Hampton Roads Sanitary Department's (HRSD) wastewater treatment facility and adding a new monitor at the Lamberts Point property boundary. Further, Norfolk Southern voluntarily submitted a Quality Assurance Project Plan to the Virginia Department of Environmental Quality in 2015 and will submit monitoring results to DEQ each quarter.

2015 Review

Performance Monitoring Plan

The Performance Monitoring Plan is Norfolk Southern's strategy for monitoring the effectiveness of coal treatments by participating mines and for identifying additional mines that may be encouraged to participate in the dust control program. The major components of the Performance Monitoring Plan currently implemented are:

- Trackside Monitor – Altavista, VA
- 1-800 Dusting Report Line
- Community Air Quality Monitoring at Lamberts Point in Norfolk, VA

The multi-component approach established by Norfolk Southern is designed to provide continuous and unbiased feedback on the performance of its dust control program with the Trackside Monitors and 1-800 line.

Norfolk Southern will continue the Performance Monitoring Plan in 2016. Norfolk Southern will, as it has done in the past, work to expand mine participation should the Trackside Monitors or the 1-800 Dusting Report Line identify significant new sources. Norfolk Southern will also continue to participate as needed in the evaluation of advanced dust control agents for use in the coal dust treatment program.

Trackside Monitor - Altavista, VA

The Trackside Monitor at Altavista monitors both trains bound for export through Lamberts Point as well as those destined for regional domestic coal consumers. A continuing goal is to reduce the time taken to alert the mines of any evidence of treatment failure and thus to enable prompt corrective measures, if necessary. Establishing a baseline for the autonomous grading system used to monitor fugitive dust emissions started at Altavista in August 2015. Full implementation of that grading system will occur early 2016 once the baseline is populated with a sufficient number of trains.

The former fugitive emissions grading system was suspended after the first quarter of 2015. In the first quarter of 2015, the Altavista Trackside Monitor reported that 88% of all coal trains produced little measurable dust (<25 micrograms per cubic meter), which was better than the 80% reported in 2014. The average of the dust signals produced by the remaining 12% of the trains was 50.4 micrograms per cubic meter which is below last year's value of 61.8 micrograms per cubic meter and well below Norfolk Southern's performance target of 100 micrograms per cubic meter. Maintaining an average intensity of dusting events below 100 micrograms per cubic meter is the most likely reason for the continued low number of 1-800 reports in the Altavista area. These dust concentrations (micrograms per cubic meter) represent the peak signal recorded by a real-time monitor for an individual mine's shipment as it passes the monitor. These events, when averaged over a 24 hour period contribute, on average, < 0.05 micrograms per cubic meter. Norfolk Southern continues monitoring performance to determine whether a series of excessive dusting events occurs.

1-800 Dusting Report Line

There were no calls to the Virginia 1-800 Dusting Report Line in 2015. Historically, the Virginia 1-800 Dusting Report Line has received few calls, with only 6 total calls received since 2003, and no calls received over the last 2 years. The data from the Trackside Monitor sites suggest little material change from 2008 to 2015 in the number of dusting trains and/or the magnitudes of the detected dust signals. Although not received through the 1-800 line, Norfolk Southern did receive several complaints about dust from its operations at its Lamberts Point in Norfolk, VA.

Lamberts Point Community Air Quality Monitoring

The Lamberts Point Community Monitoring Program monitors airborne particulates in the area surrounding the Lamberts Point coal pier in Norfolk through the use of three PM₁₀ monitors. Two PM₁₀ monitors are collocated at the HRSD waste water treatment facility adjacent to the pier. Norfolk Southern purchased and installed a new PM₁₀ monitor to replace the original monitor at the waste water treatment facility. Norfolk Southern worked with the DEQ to follow their Quality Control guidelines for installing and operating this new dust monitor, and developed the Quality Assurance Monitoring Plan outlining the proper procedures for operating and maintaining an ambient air monitor. This plan was approved by the DEQ on July 27, 2015. With DEQ's concurrence, Norfolk Southern also installed a second monitor near the Lambert Point Administration Building for enhanced PM₁₀ monitoring. The DEQ ambient air quality standards were not exceeded at any time in 2015.

Anticipated 2016 Program Improvements

Norfolk Southern continues to fund improvements in the tools needed to execute its Performance Monitoring Plan. Sensor hardware upgrades to the Altavista Trackside Monitor have been completed and Norfolk Southern plans to implement an advanced grading system in 2016 that will evaluate the dustiness levels of the trains and grade them accordingly. This metric can be used to help NS identify excessively dusty events.

Norfolk Southern will continue to explore ways to improve the efficiency of the treatments and expand their applications to additional mines by evaluating the continued monitoring of the performance of implemented treatment programs.